WHAT IS CLAIMED IS:

1. A delivery source of oxygen for oxygenating blood and tissue, the source comprising at least one oxygen carrier supported by a substrate.

2. The source of claim 1 wherein the oxygen carrier is incorporated into the substrate.

3. The source of claim 1 wherein the oxygen carrier is attached to the substrate.

4. The source of claim 1 wherein the substrate comprises a membrane or thin film.

5. The source of claim 1 wherein the substrate comprises a hollow tube.

6. The source of claim 3 wherein the tube comprises a porous inner surface membrane incorporating the oxygen carrier and the source further comprises a channel transport system for passing liquid through the porous surface.

7. The source of claim 1 wherein the substrate comprises an inflatable balloon.

8. The source of claim 7 wherein the oxygen carrier comprises a thin film membrane wrapped around a surface of the balloon.

9. The source of claim 1 wherein the substrate comprises a perfusion balloon catheter.

10. The source of claim 9 further comprising a removable housing disposed around a balloon portion of the balloon catheter.

11. The source of claim 9 further comprising an eluding portion, on a surface of the catheter, having a plurality of holes communicating with a perfusion channel through the balloon catheter.

12. The source of claim 1 wherein said substrate comprises a coronary wire.

13. The source of claim 12 wherein the oxygen carrier is firmly attached to a tip of said coronary wire.

14. The source of claim 1 wherein said substrate comprises a stent delivery balloon.

15. The source of claim 1 wherein said substrate comprises a tissue patch.

16. The source of claim 1 wherein said substrate comprises an ionizing radiation source.

17. The source of claim 16 wherein said ionizing radiation source comprises a beta-particle emitter.

18. The source of claim 1 wherein said substrate comprises an ultraviolet light source.

19. The source of claim 1 wherein said substrate comprises a porous polymer.

20. The source of claim 19 wherein said porous polymer includes pores having sizes the range of about 20 to about 200 microns.

21. The source of claim 19 wherein said porous polymer is selected from a group of polymers including Teflon, polyethylene, polyethylene terephtalate, nylon, silicon, and cellulose acetate.

22. The source of claim 1 wherein said oxygen carrier comprises a fluorocarbon.

23. The source of claim 1, wherein said oxygen carrier comprises a fluorocarbon solution.

24. The source of claim 1, wherein said oxygen carrier is lipophilic.

25. The source of claim 1 further comprising a housing for protectively covering said substrate in order to prevent leakage of gaseous liquids.

26. The source of claim 1 further comprising a removable protective film coating covering said substrate in order to prevent escape of oxygen molecules.

27. The source of claim 1, wherein the oxygen carrier is present in a liquid solution disposed in a housing container.

28. The source of claim 1, wherein said substrate comprises a porous polymer, wherein the polymer includes pores having sizes in the range of

about 20 through 200 microns and wherein the polymer is selected from a group of polymers including Teflon, polyethylene, polyethylene terephtalate, nylon, silicon, and cellulose acetate.